## AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method of transmitting data signals from at least two transmitting terminals, with each having at least one transmitting means, to at least one receiving terminal ~~with~~ having a spatial diversity receiving means, the method comprising:

transmitting from the transmitting terminals transformed data signals, being transformed versions of ~~the~~ respective data signals, wherein spectra of the transformed data signals are at least partly overlapping;

receiving on the spatial diversity means received data signals, wherein the received data signals are each ~~being at least~~ a function of one of the ~~at least two of the~~ transformed data signals;

subband processing of ~~at least two of~~ the received data signals in the receiving terminal; and

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determining estimates of the respective data signals, on a subband by subband basis, from the subband processed received data signals in the receiving terminal, wherein said determining includes, for at least one data signal:

selecting from the data signals a selected data signal;

determining an estimate of the selected data signal from the subband processed received data signals;

modifying the subband processed received data signals based on the estimate of the selected data signal; and

determining estimates of the remaining data signals from the modified subband processed received data signals.

2. (Original) The method of Claim 1, wherein the transmitting is substantially simultaneous.

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Original) The method of Claim 1, wherein selecting a data signal is based on the receiving power of the data signals.

7. (Original) The method of Claim 1, wherein selecting a data signal is based on the interference ratio of the data signals.

8. (Cancelled)

9. (Original) The method of Claim 1, wherein selecting a data signal is based on the interference ratio of the data signals.

10. (Original) The method of Claim 1, wherein the subbands, being involved in the subband processing, are grouped into sets, at least one set comprising at least two subbands; and wherein determining the estimates of the data signals in the receiving terminal comprises:

determining relations between the data signals and subband processed received data signals on a set-by-set basis; and

exploiting the relations between the data signals and the subband processed received data signals for determining the data signals.

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11. (Original) The method of Claim 1, wherein the transformation of the data signals to transformed data signals comprises inverse subband processing.

12. (Original) The method of Claim 1, wherein determining estimates of the data signals from subband processed received data signals in the receiving terminal comprises:

determining intermediate estimates of the data signals from the subband processed received data signals in the receiving terminal; and

obtaining the estimates of the data signals by inverse subband processing the intermediate estimates.

13. (Original) The method of Claim 1, wherein the transformation of the data signals to transmitted data signals further comprises guard interval introduction.

14. (Original) The method of Claim 1, wherein the subband processing comprises orthogonal frequency division demultiplexing.

15. (Currently amended) The method of Claims 11 ~~or 12~~, wherein the inverse subband processing comprises orthogonal frequency division multiplexing.

16. (Original) The method of Claim 1, wherein the determining of the data signals is essentially based on the distinct spatial signatures of the received data signals.

17. (Currently amended) A method of transmitting data signals from ~~at least one~~ a transmitting terminal ~~with~~ having a spatially diversity transmitting means comprising at least two transmitting means to at least two receiving terminals ~~with at least one receiving means~~, the method comprising:

providing at least two data signals at the transmitting terminal;

determining at least two combined data signals in the transmitting terminal, the combined data signals each being transformed versions of the data signals, wherein the combined data signals are adapted for facilitating estimation of the data signals by the receiving terminals;

inverse subband processing each of the combined data signals;

transmitting ~~with the spatial diversity~~ one of the inverse subband processed combined data signals from each of the at least two transmitting means, wherein said inverse subband processed combined data signals form a different composite data signal at each of said at least two receiving terminals ~~inverse subband processed combined data signals~~;

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receiving ~~on at least one of the receiving means of~~ at ~~least one of the~~ each receiving terminals one of a plurality of composite data signals ~~inverse subband processed received data signals, being at least function of the inverse subband processed combined data signals~~; and

determining at each receiving terminal an estimates of the data signals intended for the respective receiving terminal from the respective received composite data signal ~~inverse subband processed received data signals~~.

18. (Currently amended) The method of Claim 17, wherein the transmitting of said inverse subband processed combined data signals from said at least two transmitting means is substantially simultaneous.

19. (Currently amended) The method of Claim 17, wherein the spectra of the inverse subband processed combined data signals are at least partly overlapping.

20. The method of Claim 17, wherein determining the at least two combined data signals in the transmitting terminal is determined on a subband by subband basis.

21. (Currently amended) The method of Claim ~~17~~ 19, wherein determining the estimates of the data signals in the receiving terminals comprises subband processing.

22. (Original) The method of Claim 17, wherein determining combined data signals in the transmitting terminal comprises:

determining intermediate combined data signals by subband processing the data signals; and

determining the combined data signals from the intermediate combined data signals.

23. (Currently Amended) The method of Claims 21 ~~or 22~~, wherein the subband processing is orthogonal frequency division demultiplexing.

24. (Original) The method of Claim 17, wherein the inverse subband processing is orthogonal frequency division multiplexing.

25. (Original) The method of Claim 17, wherein the subbands, being involved in inverse subband processing, are grouped into sets, at least one set comprising at least two subbands; and wherein determining combined data signals in the transmitting terminal comprises:

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determining relations between the data signals and the combined data signals on a set-by-set basis; and

exploiting the relations between the data signals and the combined data signals for determining the data signals.

26. (Original) The method of Claim 17, wherein in the inverse subband processed combined data signals a guard interval is introduced.

27. (Original) The method of Claim 17, wherein the determining of combined data signals is essentially based on the distinct spatial signatures of the transmitted inverse subband processed combined data signals.

28. An apparatus for determining estimates of data signals ~~from at least two received data signals, the received data signals~~, the apparatus comprising:

at least one spatial diversity receiving means <u>comprising at least two receiving means</u>;

circuitry ~~being arranged~~ for receiving ~~the~~ <u>a</u> ~~received~~ data signals ~~with the spatial diversity receiving means~~ <u>on each of the at least two receiving means, wherein the data signals received on the at least two receiving means are each a function of a transmitted signal and characteristics of the data signals define a spatial signature of the data signals</u>;

circuitry ~~being arranged~~ for subband processing, <u>on a subband by subband basis, the data signals received on each of the at least two receiving means,</u> ~~at least two of the received data signals~~; and

circuitry ~~being arranged~~ for determining estimates of the data signals from the subband processed received data signals.

29. (Original) The apparatus of Claim 28 wherein the circuitry is arranged for determining estimates of the data signals from subband processed received data signals and comprises a plurality of circuits each being arranged for determining part of the estimates of the data signals based on part of the subbands of the subband processed received data signals.

30. (Original) The apparatus of Claim 28, wherein the spatial diversity means comprises at least two receiving means and the circuitry is arranged for receiving the received data signals with the spatial diversity means and comprises a plurality of circuits each being arranged for receiving the received data signals from one of the receiving means of the spatial diversity means.

31. (Original) The apparatus of Claim 28, wherein the determining of the data signals is essentially based on the distinct spatial signatures of the received data signals.

32. (Cancelled)

33. (Currently amended) An apparatus for transmitting ~~an inverse subband processed combined~~ a plurality of data signals to a plurality of terminals, the apparatus comprising:

~~at least one spatial diversity transmitting means configured to transmit said inverse subband processed combined data signals to ;~~

circuitry ~~being arranged~~ for combining a plurality of data signals to create two combined data signals, wherein the combined data signals are adapted for facilitating estimation of the plurality of data signals respectively intended for each of a plurality receiving terminals;

circuitry ~~being arranged~~ for inverse subband processing the combined data signals; and

at least two spatial diverse transmitting means configured to transmit respective inverse subband processed combined data signals to at least two receiving terminals, wherein said inverse subband processed combined data signals form a composite data signal at each of said plurality of terminals. ~~circuitry being arranged for transmitting inverse subband processed combined data signals with the spatial diversity means.~~

34. (Currently Amended) The apparatus of Claim 33, wherein the combining circuitry ~~being adapted for combining data signals comprising~~ comprises a plurality of circuits each being adapted for combining data signals based on part of the subbands of the data signals.

35. (Currently Amended) The apparatus of Claim 33, wherein the spatial diversity transmitting means comprises at least two transmitting means ~~and the circuitry being~~ adapted for transmitting inverse subband processed combined data signals; the transmitting means further comprises a plurality of circuits each being adapted for transmitting the inverse subband processed combined data signals with one of the transmitting means of the spatial diversity means.

36. (Original) The apparatus of Claim 33, wherein the spectra of the inverse subband processed combined data signals are at least partly overlapping.

37. (Currently Amended) The apparatus of Claim 33, wherein the combining of data signals ~~being~~ is essentially based on the distinct spatial signatures of the transmitted inverse subband processed combined data signals.

38. (Original) The apparatus of Claim 33, wherein determining combined data signals are on a subband by subband basis.

39. (New) A method of transmitting data signals from at least two transmitting terminals with each at least one transmitting means to at least one receiving terminal with a spatial diversity receiving means comprising:

transmitting from the transmitting terminals transformed data signals, being transformed versions of the data signals, wherein spectra of the transformed data signals are at least partly overlapping;

receiving on the spatial diversity means received data signals being at least function of at least two of the transformed data signals;

subband processing of at least two of the received data signals in the receiving terminal; and

determining estimates of the data signals, on a subband by subband basis, from subband processed received data signals in the receiving terminal, wherein determining the estimates of the data signals comprises:

selecting from the data signals a selected data signal;

determining a plurality of estimates of the selected data signal from the subband processed received data signals;

determining a plurality of modified subband processed received data signals, each of the modified subband processed received data signals being based on one of the estimates of the selected data signal;

determining a plurality of estimates of at least one of the remaining data signals from the plurality of modified subband processed received data signals; and

thereafter selecting one of the estimates of the selected data signal.

40. (New) The method of Claim 39, wherein selecting a data signal is based on the receiving power of the data signals.

41. (New) The method of Claim 39, wherein selecting a data signal is based on the interference ratio of the data signals.

42. (New) The method of Claim 39, wherein selecting a data signal is based on the interference ratio of the data signals.

43. (New) A method of transmitting data signals from at least two transmitting terminals with each at least one transmitting means to at least one receiving terminal with a spatial diversity receiving means comprising:

transmitting from the transmitting terminals at least two transformed data signals, the transformed data signals being transformed versions of the data signals;

receiving on the spatial diversity means received data signals being at least function of at least two of the transformed data signals;

subband processing of at least two of the received data signals in the receiving terminal;

determining intermediate estimates of the data signals from the subband processed received data signals in the receiving terminal; and

obtaining estimates of the data signals by inverse subband processing the intermediate estimates.

44. (New) The method of Claim 43, wherein the determining of the data signals is essentially based on the distinct spatial signatures of the received data signals.

45. (New) The method of Claim 17, wherein the combined data signals are adapted to separate each receiving terminals' data symbols so that each respective receiving terminal may determine an estimation of the data signal intended for each respective receiving terminal.

46. (New) A system for transmitting data signals from at least one transmitting terminal having a spatial diversity transmitting means to at least two receiving terminals each having at least one receiving means comprising:

means for determining intermediate combined data signals by subband processing the data signals;

means for determining the combined data signals from the intermediate combined data signals, the combined data signals being transformed versions of the data signals, wherein the combined data signals are adapted for facilitating estimation of the data signals by said receiving terminals;

means for inverse subband processing the combined data signals;

means for transmitting with the spatial diversity transmitting means said inverse subband processed combined data signal;

means for receiving on at least one of the receiving means of at least one of the receiving terminals an inverse subband processed received data signals, being at least function of the inverse subband processed combined data signals; and

means for determining at said at least one of the receiving means estimates of the data signals intended for said at least one of the receiving means from the inverse subband processed received data signals.

47. (New) A communication method comprising:

receiving a plurality of data signals at a base station;

generating two combined data signals based on said plurality of data signals, wherein the combined data signals are adapted for facilitating estimation of one of the plurality of data signals at each of a plurality of receiving terminals; and

transmitting from each of two transmitters one of the two combined data signals.

48. (New) The communication method of Claim 47, wherein said combined data signals form a composite data signal at each of said plurality of receiving terminals.

49. (New) The method of Claim 48, further comprising:

receiving at each of said plurality of receiving terminals one of said composite data signals; and

determining at each of said receiving terminals an estimate of the data signal intended for the respective receiving terminal from the composite data signals.

50. (New) A method of transmitting data signals from a terminal to a base station, the method comprising:

transmitting a data signal from a terminal;

receiving at a base station on two spatially diverse receiving means respective representations of said data signal, wherein the representations of said data signal received on the two receiving means are each a function of the data signal; and

estimating the data signal based at least partly on the differences between the representations of the data signal received on the two receiving means due to the different transmission paths taken by each of the data signals.

51. (New) The method of Claim 50, wherein the estimating the data signal is based at least partly on an interference ratio of the representations of the data signal.

52. (New) The method of Claim 50, wherein the data signal is inverse subband processed before said transmitting.